EBERLINE SERVICES

January 24, 2004

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Avenue
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R4-01-036-7678, SDG H2490

Dear Mr. Trent:

Enclosed is the data report for two soil samples designated under SAF No. F03-020 received at Eberline Services on January 8, 2004. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
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1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2490 was composed of two soil samples designated under SAF No. F03-020 with a Project Designation of: 216-B-26 Characterization Sampling – Soil Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.7 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion — 1/24/4

Melissa C. Mannion
Senior Program Manager

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H2490

SDG 7678
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2490

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 01/24/04

SDG 7678
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2490

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/24/04

SDG 7678
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2490

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

LAB SAMPLE SUMMARY

SDG 7678
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2490

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R401036-01	B183N8	C3245 (247.5-250 ft)	SOLID		F03-020	F03-020-026	12/30/03 09:18
R401036-02	B183P1	C3245 (292.5-295 ft)	SOLID		F03-020	F03-020-026	12/03/03 13:05
R401036-03	Lab Control Sample		SOLID		F03-020		
R401036-04	Method Blank		SOLID		F03-020		
R401036-05	Duplicate (R401036-01)	C3245 (247.5-250 ft)	SOLID		F03-020		12/30/03 09:18
R401036-06	Spike (R401036-02)	C3245 (292.5-295 ft)	SOLID		F03-020		12/03/03 13:05

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

SDG 7678
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2490

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7678	F03-020-026	B183N8	SOLID	98.0	324.8 g		01/08/04	9	R401036-01	7678-001
		B183P1	SOLID	98.3	332.5 g		01/08/04	36	R401036-02	7678-002
		Method Blank	SOLID						R401036-04	7678-004
		Lab Control Sample	SOLID						R401036-03	7678-003
		Duplicate (R401036-01)	SOLID	98.0	324.8 g		01/08/04	9	R401036-05	7678-005
		Spike (R401036-02)	SOLID	98.3	332.5 g		01/08/04	36	R401036-06	7678-006

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

SDG 7678
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2490

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
TH	SOLID	Thorium, Isotopic in Soil	7084-030	5.0	2			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7084-030	10.0	2			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	7084-030	10.0	2			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7084-030	15.0	2			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	7084-030	10.0	2			1	1	1/1		
H	SOLID	Tritium in Soil	7084-030	10.0	2			1	1	1/1	1/1	X
NI_L	SOLID	Nickel 63 in Soil	7084-030	10.0	2			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

SDG 7678
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2490

LAB SAMPLE / COLLECTED / RECEIVED	CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R401036-01	B183N8			7678-001	C		01/21/04	01/23/04	MWT	Carbon 14 in Soil
12/30/03	C3245 (247.5-250 ft)		SOLID	7678-001	GAM		01/16/04	01/23/04	MWT	Gamma Scan
01/08/04	F03-020-026	F03-020		7678-001	H		01/22/04	01/23/04	MWT	Tritium in Soil
				7678-001	NI_L		01/21/04	01/23/04	MWT	Nickel 63 in Soil
				7678-001	SR		01/17/04	01/23/04	MWT	Total Strontium in Soil
				7678-001	TC		01/19/04	01/23/04	MWT	Technetium 99 in Soil
				7678-001	TH		01/19/04	01/23/04	MWT	Thorium, Isotopic in Soil
R401036-02	B183P1			7678-002	C		01/21/04	01/23/04	MWT	Carbon 14 in Soil
12/03/03	C3245 (292.5-295 ft)		SOLID	7678-002	GAM		01/17/04	01/23/04	MWT	Gamma Scan
01/08/04	F03-020-026	F03-020		7678-002	H		01/22/04	01/23/04	MWT	Tritium in Soil
				7678-002	NI_L		01/21/04	01/23/04	MWT	Nickel 63 in Soil
				7678-002	SR		01/17/04	01/23/04	MWT	Total Strontium in Soil
				7678-002	TC		01/20/04	01/23/04	MWT	Technetium 99 in Soil
				7678-002	TH		01/19/04	01/23/04	MWT	Thorium, Isotopic in Soil
R401036-03	Lab Control Sample			7678-003	C		01/21/04	01/23/04	MWT	Carbon 14 in Soil
			SOLID	7678-003	GAM		01/19/04	01/23/04	MWT	Gamma Scan
		F03-020		7678-003	H		01/22/04	01/23/04	MWT	Tritium in Soil
				7678-003	NI_L		01/21/04	01/23/04	MWT	Nickel 63 in Soil
				7678-003	SR		01/17/04	01/23/04	MWT	Total Strontium in Soil
				7678-003	TC		01/19/04	01/23/04	MWT	Technetium 99 in Soil
				7678-003	TH		01/20/04	01/23/04	MWT	Thorium, Isotopic in Soil
R401036-04	Method Blank			7678-004	C		01/20/04	01/23/04	MWT	Carbon 14 in Soil
			SOLID	7678-004	GAM		01/19/04	01/23/04	MWT	Gamma Scan
		F03-020		7678-004	H		01/22/04	01/23/04	MWT	Tritium in Soil
				7678-004	NI_L		01/21/04	01/23/04	MWT	Nickel 63 in Soil
				7678-004	SR		01/17/04	01/23/04	MWT	Total Strontium in Soil
				7678-004	TC		01/19/04	01/23/04	MWT	Technetium 99 in Soil
				7678-004	TH		01/19/04	01/23/04	MWT	Thorium, Isotopic in Soil
R401036-05	Duplicate (R401036-01)			7678-005	C		01/21/04	01/23/04	MWT	Carbon 14 in Soil
12/30/03	C3245 (247.5-250 ft)		SOLID	7678-005	GAM		01/19/04	01/23/04	MWT	Gamma Scan
01/08/04		F03-020		7678-005	H		01/22/04	01/23/04	MWT	Tritium in Soil
				7678-005	NI_L		01/21/04	01/23/04	MWT	Nickel 63 in Soil
				7678-005	SR		01/17/04	01/23/04	MWT	Total Strontium in Soil
				7678-005	TC		01/20/04	01/23/04	MWT	Technetium 99 in Soil
				7678-005	TH		01/19/04	01/23/04	MWT	Thorium, Isotopic in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 01/24/04

SDG 7678
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2490

LAB SAMPLE / COLLECTED / RECEIVED	CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R401036-06 12/03/03 01/08/04	Spike (R401036-02) C3245 (292.5-295 ft)	F03-020	SOLID	7678-006	H		01/22/04	01/23/04	MWT	Tritium in Soil

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	F03-020	Carbon 14 in Soil	C14_COX_LSC	2			1	1	1		5
GAM	F03-020	Gamma Scan	GAMMA_GS	2			1	1	1		5
H	F03-020	Tritium in Soil	906.0_H3_LSC	2			1	1	1	1	6
NI_L	F03-020	Nickel 63 in Soil	NI63_LSC	2			1	1	1		5
SR	F03-020	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	2			1	1	1		5
TC	F03-020	Technetium 99 in Soil	TC99_TR_SEP_LSC	2			1	1	1		5
TH	F03-020	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	2			1	1	1		5
TOTALS				14			7	7	7	1	36

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2490

7678-004 Method Blank

METHOD BLANK

SDG 7678 Client/Case no Hanford SDG H2490
Contact Melissa C. Mannion Contract No. 630

Lab sample id R401036-04 Client sample id Method Blank
Dept sample id 7678-004 Material/Matrix SOLID
SAF No F03-020

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.125	0.17	0.29	400	U	H
Carbon 14	14762-75-5	0.036	1.3	2.2	50	U	C
Nickel 63	13981-37-8	0.922	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	0.014	0.13	0.26	1.0	U	SR
Technetium 99	14133-76-7	0.037	0.14	0.56	15	U	TC
Thorium 228	14274-82-9	0	0.11	0.41		U	TH
Thorium 230	14269-63-7	-0.107	0.11	0.41	1.0	U	TH
Thorium 232	TH-232	0	0.11	0.41	1.0	U	TH
Potassium 40	13966-00-2	U		1.0		U	GAM
Cobalt 60	10198-40-0	U		0.041	0.050	U	GAM
Cesium 137	10045-97-3	U		0.039	0.10	U	GAM
Radium 226	13982-63-3	U		0.078	0.10	U	GAM
Radium 228	15262-20-1	U		0.18	0.20	U	GAM
Europium 152	14683-23-9	U		0.086	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.066	0.10	U	GAM
Thorium 228	14274-82-9	U		0.051		U	GAM
Thorium 232	TH-232	U		0.18		U	GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		4.6		U	GAM
Americium 241	14596-10-2	U		0.030		U	GAM

216-B-26 Characterization Smpl.-Soil

QC-BLANK 46549

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

7678-003 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7678 Client/Case no Hanford SDG H2490

Contact Melissa C. Mannion Contract No. 630

Lab sample id R401036-03 Client sample id Lab Control Sample

Dept sample id 7678-003 Material/Matrix SOLID

SAF No F03-020

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	11.3	0.38	0.27	400		H	11.7	0.47	97	84-116	80-120
Carbon 14	1550	31	6.7	50		C	1600	64	97	84-116	80-120
Nickel 63	232	5.0	2.5	30		NI_L	228	9.1	102	83-117	80-120
Total Strontium	10.8	0.63	0.28	1.0		SR	10.4	0.42	104	81-119	80-120
Technetium 99	109	2.7	0.60	15		TC	109	4.4	100	83-117	80-120
Thorium 230	47.0	5.2	0.35	1.0		TH	42.0	1.7	112	79-121	80-120
Cobalt 60	0.979	0.068	0.038	0.050		GAM	1.22	0.049	80	79-121	80-120
Cesium 137	0.942	0.058	0.047	0.10		GAM	1.07	0.043	88	78-122	80-120

216-B-26 Characterization Smpl.-Soil

QC-LCS 46548

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

7678-005 B183N8

DUPLICATE

SDG 7678 Client/Case no Hanford SDG H2490

Contact Melissa C. Mannion Contract No. 630

DUPLICATE	ORIGINAL	
Lab sample id R401036-05	Lab sample id R401036-01	Client sample id B183N8
Dept sample id 7678-005	Dept sample id 7678-001	Location/Matrix C3245 (247.5-250 ft) SOLID
	Received 01/08/04	Collected/Weight 12/30/03 09:18 324.8 g
% solids 98.0	% solids 98.0	Custody/SAF No F03-020-026 F03-020

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	-0.107	0.16	0.27	400	U	H	-0.050	0.16	0.27	U	-	
Carbon 14	0.297	1.2	2.0	50	U	C	-0.559	1.3	2.2	U	-	
Nickel 63	0.390	1.4	2.4	30	U	NI_L	0.408	1.4	2.4	U	-	
Total Strontium	-0.063	0.12	0.26	1.0	U	SR	0.094	0.13	0.25	U	-	
Technetium 99	0.122	0.15	0.54	15	U	TC	0.076	0.24	0.56	U	-	
Thorium 228	0.845	0.57	0.54			TH	1.04	0.47	0.44		21	118
Thorium 230	0.281	0.28	0.54	1.0	U	TH	0.631	0.46	0.44		77	178
Thorium 232	0.843	0.43	0.54	1.0		TH	1.32	0.59	0.44		44	102
Potassium 40	10.9	0.54	0.24			GAM	10.2	0.53	0.23		7	34
Cobalt 60	U		0.029	0.050	U	GAM	U		0.022	U	-	
Cesium 137	U		0.026	0.10	U	GAM	U		0.022	U	-	
Radium 226	0.310	0.053	0.054	0.10		GAM	0.289	0.045	0.044		7	47
Radium 228	0.537	0.10	0.097	0.20		GAM	0.505	0.10	0.10		6	52
Europium 152	U		0.063	0.10	U	GAM	U		0.049	U	-	
Europium 154	U		0.086	0.10	U	GAM	U		0.070	U	-	
Europium 155	U		0.055	0.10	U	GAM	U		0.059	U	-	
Thorium 228	0.477	0.031	0.030			GAM	0.533	0.042	0.040		11	35
Thorium 232	0.537	0.10	0.097			GAM	0.505	0.10	0.10		6	52
Uranium 235	U		0.084		U	GAM	U		0.084	U	-	
Uranium 238	U		2.9		U	GAM	U		2.5	U	-	
Americium 241	U		0.060		U	GAM	U		0.098	U	-	

216-B-26 Characterization Smpl.-Soil

QC-DUP#1 46550

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

7678-006 B183P1

MATRIX SPIKE

SDG	7678			Client/Case no	Hanford SDG H2490
Contact	Melissa C. Mannion			Contract	No. 630
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R401036-06	Lab sample id	R401036-02	Client sample id	B183P1
Dept sample id	7678-006	Dept sample id	7678-002	Location/Matrix	C3245 (292.5-295 ft) SOLID
		Received	01/08/04	Collected/Weight	12/03/03 13:05 332.5 g
% solids	98.3	% solids	98.3	Custody/SAF No	F03-020-026 F03-020

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	46.0	0.71	0.27	400	X	H	49.4	2.0	-0.106	0.15	93	85-115	60-140

216-B-26 Characterization Smpl.-Soil

QC-MS#2 46551

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	01/24/04

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2490

7678-001 B183N8

DATA SHEET

SDG	7678	Client/Case no	Hanford SDG H2490
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R401036-01	Client sample id	B183N8
Dept sample id	7678-001	Location/Matrix	C3245 (247.5-250 ft) SOLID
Received	01/08/04	Collected/Weight	12/30/03 09:18 324.8 g
% solids	98.0	Custody/SAF No	F03-020-026 F03-020

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.050	0.16	0.27	400	U	H
Carbon 14	14762-75-5	-0.559	1.3	2.2	50	U	C
Nickel 63	13981-37-8	0.408	1.4	2.4	30	U	NI_L
Total Strontium	SR-RAD	0.094	0.13	0.25	1.0	U	SR
Technetium 99	14133-76-7	0.076	0.24	0.56	15	U	TC
Thorium 228	14274-82-9	1.04	0.47	0.44			TH
Thorium 230	14269-63-7	0.631	0.46	0.44	1.0		TH
Thorium 232	TH-232	1.32	0.59	0.44	1.0		TH
Potassium 40	13966-00-2	10.2	0.53	0.23			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Cesium 137	10045-97-3	U		0.022	0.10	U	GAM
Radium 226	13982-63-3	0.289	0.045	0.044	0.10		GAM
Radium 228	15262-20-1	0.505	0.10	0.10	0.20		GAM
Europium 152	14683-23-9	U		0.049	0.10	U	GAM
Europium 154	15585-10-1	U		0.070	0.10	U	GAM
Europium 155	14391-16-3	U		0.059	0.10	U	GAM
Thorium 228	14274-82-9	0.533	0.042	0.040			GAM
Thorium 232	TH-232	0.505	0.10	0.10			GAM
Uranium 235	15117-96-1	U		0.084		U	GAM
Uranium 238	U-238	U		2.5		U	GAM
Americium 241	14596-10-2	U		0.098		U	GAM

216-B-26 Characterization Smpl.-Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/24/04

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2490

7678-002 B183P1

DATA SHEET

SDG	7678	Client/Case no	Hanford SDG H2490
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R401036-02	Client sample id	B183P1
Dept sample id	7678-002	Location/Matrix	C3245 (292.5-295 ft) SOLID
Received	01/08/04	Collected/Weight	12/03/03 13:05 332.5 g
% solids	98.3	Custody/SAF No	F03-020-026 F03-020

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.106	0.15	0.27	400	U	H
Carbon 14	14762-75-5	0.713	1.3	2.1	50	U	C
Nickel 63	13981-37-8	-1.08	1.4	2.5	30	U	NI_L
Total Strontium	SR-RAD	-0.075	0.11	0.25	1.0	U	SR
Technetium 99	14133-76-7	-0.014	0.16	0.54	15	U	TC
Thorium 228	14274-82-9	0.865	0.42	0.39			TH
Thorium 230	14269-63-7	0.254	0.31	0.39	1.0	U	TH
Thorium 232	TH-232	0.609	0.31	0.39	1.0		TH
Potassium 40	13966-00-2	10.5	0.77	0.37			GAM
Cobalt 60	10198-40-0	U		0.040	0.050	U	GAM
Cesium 137	10045-97-3	U		0.034	0.10	U	GAM
Radium 226	13982-63-3	0.285	0.071	0.077	0.10		GAM
Radium 228	15262-20-1	0.524	0.15	0.15	0.20		GAM
Europium 152	14683-23-9	U		0.087	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.096	0.10	U	GAM
Thorium 228	14274-82-9	0.408	0.044	0.045			GAM
Thorium 232	TH-232	0.524	0.15	0.15			GAM
Uranium 235	15117-96-1	U		0.14		U	GAM
Uranium 238	U-238	U		4.6		U	GAM
Americium 241	14596-10-2	U		0.16		U	GAM

216-B-26 Characterization Smpl.-Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

Test TH Matrix SOLID
SDG 7678
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2490

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
Preparation batch 7084-030					
R401036-01			7678-001	B183N8	0.631
R401036-02			7678-002	B183P1	U
R401036-03			7678-003	LCS (QC ID=46548)	ok
R401036-04			7678-004	BLK (QC ID=46549)	U
R401036-05			7678-005	Duplicate (R401036-01)	ok U
Nominal values and limits from method 216-B-26 Characterization Smpl.-Soil				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7084-030			2σ prep error 5.0 %				Reference Lab Notebook 7084 pg. 030									
R401036-01			B183N8	0.44	0.250			60	153			20	01/19/04	01/19	SS-062	
R401036-02			B183P1	0.39	0.250			78	153			47	01/19/04	01/19	SS-063	
R401036-03			LCS (QC ID=46548)	0.35	0.250			71	152				01/19/04	01/20	SS-028	
R401036-04			BLK (QC ID=46549)	0.41	0.250			66	153				01/19/04	01/19	SS-066	
R401036-05			Duplicate (R401036-01) (QC ID=46550)	0.54	0.250			46	154			20	01/19/04	01/19	SS-028	
Nominal values and limits from method				1.0	0.250			20-105	150			180				

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-061	Determination of Moisture Content in Solid Samples rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.43 ± 0.14
YIELD 64 ± 24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

Test SR Matrix SOLID
SDG 7678
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2490

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
Preparation batch 7084-030					
R401036-01			7678-001	B183N8	U
R401036-02			7678-002	B183P1	U
R401036-03			7678-003	LCS (QC ID=46548)	ok
R401036-04			7678-004	BLK (QC ID=46549)	U
R401036-05			7678-005	Duplicate (R401036-01)	- U
Nominal values and limits from method				RDLs (pCi/g)	1.0
216-B-26 Characterization Smpl.-Soil					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7084-030			2σ prep error 10.0 %		Reference Lab Notebook 7084 pg. 030											
R401036-01			B183N8	0.25	1.00			94	100				18	01/17/04	01/17	GRB-231
R401036-02			B183P1	0.25	1.00			89	100				45	01/17/04	01/17	GRB-222
R401036-03			LCS (QC ID=46548)	0.28	1.00			80	100					01/17/04	01/17	GRB-229
R401036-04			BLK (QC ID=46549)	0.26	1.00			86	100					01/17/04	01/17	GRB-224
R401036-05			Duplicate (R401036-01) (QC ID=46550)	0.26	1.00			95	100				18	01/17/04	01/17	GRB-229
Nominal values and limits from method				1.0	1.00			30-105	100				180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-061	Determination of Moisture Content in Solid Samples rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-381	Strontium in Solids, rev 1

AVERAGES ± 2 SD FOR 5 SAMPLES			
	MDA	0.26	± 0.024
	YIELD	89	± 12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

Test TC Matrix SOLID
SDG 7678
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2490

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99
Preparation batch 7084-030					
R401036-01			7678-001	B183N8	U
R401036-02			7678-002	B183P1	U
R401036-03			7678-003	LCS (QC ID=46548)	ok
R401036-04			7678-004	BLK (QC ID=46549)	U
R401036-05			7678-005	Duplicate (R401036-01)	- U
Nominal values and limits from method				RDLs (pCi/g)	15
216-B-26 Characterization Smpl.-Soil					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7084-030			2σ prep error 10.0 %	Reference Lab Notebook 7084 pg. 030												
R401036-01			B183N8	0.56	1.02			89		50			20	01/16/04	01/19	GRB-203
R401036-02			B183P1	0.54	1.04			91		50			48	01/16/04	01/20	GRB-218
R401036-03			LCS (QC ID=46548)	0.60	1.00			92		50				01/16/04	01/19	GRB-229
R401036-04			BLK (QC ID=46549)	0.56	1.00			90		50				01/16/04	01/19	GRB-230
R401036-05			Duplicate (R401036-01) (QC ID=46550)	0.54	1.02			91		50			21	01/16/04	01/20	GRB-220
Nominal values and limits from method				15	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-021	Preparation of Tc-99m Tracer, rev 2
	CP-002	Q.C. Preparation, rev 4
	CP-003	Addition of Carriers and Tracers, rev 5
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.56 ± 0.049
YIELD 91 ± 2

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

Test GAM Matrix SOLID
SDG 7678
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2490

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 7084-030								
R401036-01			7678-001	B183N8	U		U	
R401036-02			7678-002	B183P1	U		U	
R401036-03			7678-003	LCS (QC ID=46548)	ok		ok	
R401036-04			7678-004	BLK (QC ID=46549)	U		U	
R401036-05			7678-005	Duplicate (R401036-01)	-	U	-	U
Nominal values and limits from method 216-B-26 Characterization Smpl.-Soil				RDLs (pCi/g)	0.050		0.10	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7084-030			2σ prep error 15.0 %	Reference Lab Notebook 7084 pg. 030												
R401036-01			B183N8	0.18	225					1021			17	01/15/04	01/16	JR,05,00
R401036-02			B183P1	0.31	214					407			45	01/15/04	01/17	JR,05,00
R401036-03			LCS (QC ID=46548)	0.038	214					401				01/15/04	01/19	JR,05,00
R401036-04			BLK (QC ID=46549)	0.28	214					401				01/15/04	01/19	JR,07,00
R401036-05			Duplicate (R401036-01) (QC ID=46550)	0.21	225					401			20	01/15/04	01/19	JR,04,00
Nominal values and limits from method				0.050	214					100			180			

PROCEDURES	REFERENCE	
	GAMMA_GS	
	CP-061	Determination of Moisture Content in Solid Samples rev 1
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD FOR 5 SAMPLES			
	MDA	0.20	± 0.21
	YIELD		±

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

Test C Matrix SOLID
SDG 7678
Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2490

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14	
Preparation batch 7084-030						
R401036-01			7678-001	B183N8	U	
R401036-02			7678-002	B183P1	U	
R401036-03			7678-003	LCS (QC ID=46548)	ok	
R401036-04			7678-004	BLK (QC ID=46549)	U	
R401036-05			7678-005	Duplicate (R401036-01)	-	U
Nominal values and limits from method 216-B-26 Characterization Smpl.-Soil				RDLs (pCi/g)	50	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7084-030			2σ prep error 10.0 %				Reference Lab Notebook 7084 pg. 030									
R401036-01			B183N8	2.2	0.403			100	100				22	01/13/04	01/21	LSC-005
R401036-02			B183P1	2.1	0.405			100	100				49	01/13/04	01/21	LSC-005
R401036-03			LCS (QC ID=46548)	6.7	0.400			100	11					01/13/04	01/21	LSC-005
R401036-04			BLK (QC ID=46549)	2.2	0.400			100	100					01/13/04	01/20	LSC-005
R401036-05			Duplicate (R401036-01) (QC ID=46550)	2.0	0.409			100	100				22	01/13/04	01/21	LSC-005
Nominal values and limits from method				50	0.400				50				180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 3.0 ± 4.1
YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

Test H Matrix SOLID
SDG 7678
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2490

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 7084-030						
R401036-01			7678-001	B183N8	U	
R401036-02			7678-002	B183P1	U	
R401036-03			7678-003	LCS (QC ID=46548)	ok	
R401036-04			7678-004	BLK (QC ID=46549)	U	
R401036-05			7678-005	Duplicate (R401036-01)	-	U
R401036-06			7678-006	Spike (R401036-02)	ok	X
Nominal values and limits from method				RDLs (pCi/g)	400	
216-B-26 Characterization Smpl.-Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7084-030			2σ prep error 10.0 %	Reference Lab Notebook 7084 pg. 030												
R401036-01			B183N8	0.27	20.8			34		120			23	01/20/04	01/22	LSC-007
R401036-02			B183P1	0.27	21.3			33		120			50	01/20/04	01/22	LSC-007
R401036-03			LCS (QC ID=46548)	0.27	20.0			33		120				01/20/04	01/22	LSC-007
R401036-04			BLK (QC ID=46549)	0.29	20.0			33		120				01/20/04	01/22	LSC-007
R401036-05			Duplicate (R401036-01) (QC ID=46550)	0.27	20.8			33		120			23	01/20/04	01/22	LSC-007
R401036-06			Spike (R401036-02) (QC ID=46551)	0.27	20.4			34		120			50	01/20/04	01/22	LSC-007
Nominal values and limits from method				400	20.0					25			180			

PROCEDURES REFERENCE 906.0_H3_LSC
CP-218 Tritium in Soil Samples by Azeotropic Distillation, rev 1

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.27 ± 0.016
YIELD 33 ± 1

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

Test NI L Matrix SOLID
SDG 7678
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2490

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
Preparation batch 7084-030						
R401036-01			7678-001	B183N8	U	
R401036-02			7678-002	B183P1	U	
R401036-03			7678-003	LCS (QC ID=46548)	ok	
R401036-04			7678-004	BLK (QC ID=46549)	U	
R401036-05			7678-005	Duplicate (R401036-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	30	
216-B-26 Characterization Smpl.-Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7084-030			2σ prep error 10.0 %		Reference Lab Notebook 7084 pg. 030											
R401036-01			B183N8	2.4	0.500			87	100				22	01/20/04	01/21	LSC-004
R401036-02			B183P1	2.5	0.500			87	100				49	01/20/04	01/21	LSC-004
R401036-03			LCS (QC ID=46548)	2.5	0.500			95	76					01/20/04	01/21	LSC-004
R401036-04			BLK (QC ID=46549)	2.2	0.500			95	100					01/20/04	01/21	LSC-004
R401036-05			Duplicate (R401036-01) (QC ID=46550)	2.4	0.500			88	100				22	01/20/04	01/21	LSC-004
Nominal values and limits from method				30	0.500			30-105		50			180			

PROCEDURES	REFERENCE	
	NI63_LSC	
	CP-061	Determination of Moisture Content in Solid Samples rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-280	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD FOR 5 SAMPLES			
	MDA	2.4	± 0.24
	YIELD	90	± 8

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 01/24/04

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2490

SDG 7678
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2490

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/24/04

SDG 7678
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2490

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/24/04

SDG 7678
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2490

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2490

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2490

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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GUIDE, cont.

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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2490

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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GUIDE, cont.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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Contract No. 630
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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/24/04

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-020-026	Page 1 of 1

Collector Pope/Hughes/Pfister	Company Contact Steve Trent / Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code ~~8N~~ 8H 8C (1) / Data Turnaround ~~45 Days~~ ~~30~~ 15 DAYS
Project Designation 216-B-26 Characterization Sampling - Soil Sampling	Sampling Location C3245 (247.5-250 ft) H2490 (7678)	SAF No. F03-020	Air Quality ☐
Ice Chest No. GPP-03-001	Field Logbook No. HNF-N- 356-1 / COA 119142ES10	Method of Shipment Federal Express	(1) MAB 1/6/04
Shipped To EBERLINE SERVICES (Formerly TMA)	Offsite Property No. See PTR	Bill of Lading/Air Bill No. See PTR	

POSSIBLE SAMPLE HAZARDS/REMARKS
RAD TIE to: B18533 (WSCF)

Special Handling and/or Storage

Preservation	Cool 4C	None									
Type of Container	G	G/P									
No. of Container(s)	1	1									
Volume	250mL	250mL									
SAMPLE ANALYSIS	Chromium Hex - 7196; NO2/NO3 - 353.2 (lined out, 12/8/03)	See item (1) in Special Instructions.									

Sample No.	Matrix *	Sample Date	Sample Time										
B183N8	SOIL	12-30-03	0918		X								

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JS POPE / [signature]	12-30-03 1100	MO-026 / frig #1	12-30-03 1100
MO-026 R#1	1/6/04 0725	M.A. Baechler M.A. Baechler	1/6/04 0725
M.A. Baechler M.A. Baechler	1/6/04 0835	Fed Ex	
Fed ex		[signature]	1-8-04 1000

SPECIAL INSTRUCTIONS

(1) Isotopic Thorium {Thorium-232}; Strontium-89,90 -- Total Sr; Nickel-63; Technetium-99; Carbon-14; Tritium - H3; Gamma Spec - Radium {Radium-226, Radium-228}

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-020-029	Page 1 of 1

Collector: Pope/Hughes/Pfister	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: ~~8N~~ ~~3H~~ 8C; Data Turnaround: ~~45 Days~~ ~~30~~ 15 DAYS
Project Designation: 216-B-26 Characterization Sampling - Soil Sampling	Sampling Location: C3245 (292.5-295 ft) H2490 (7673)	SAF No.: F03-020	Air Quality ☐
Ice Chest No.: GPP-03-001	Field Logbook No.: HNF-N- 356-1; COA: 119142ES10	Method of Shipment: Federal Express	MAB 1/6/04
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: See PTR	Bill of Lading/Air Bill No.: See PTR	

POSSIBLE SAMPLE HAZARDS/REMARKS

RAD TIE to: B18534 (WSCF)

Special Handling and/or Storage

Preservation	Cool 4C	None										
Type of Container	G	G/P										
No. of Container(s)	1	1										
Volume	250mL	250mL										
SAMPLE ANALYSIS	Chromium Hex - 7196; NO2/NO3 - 353.2 (crossed out, 12/8/03)	See item (1) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time											
B183P1	SOIL	12/31/03	1305		X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	12/31/03 1430	MO-026 [signature]	12/31/03 1430
MO-026 [signature]	1/6/04 0725	M.H. Bacher [signature]	1/6/04 0725
M.H. Bacher [signature]	1/6/04 0735	Fed Ex	
Fed Ex		[signature]	1-8-04 [illegible]

SPECIAL INSTRUCTIONS

(1) Isotopic Thorium {Thorium-232}; Strontium-89,90 -- Total Sr; Nickel-63; Technetium-99; Carbon-14; Tritium - H3; Gamma Spec - Radium {Radium-226, Radium-228}

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wl=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

A-6003-618(03/03)

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: FLR City RICHLAND State WA

Date/Time received 1000 1-8-04 CoC No. F03-020-026

Container I.D. No. APP-03-001 Requested TAT (Days) 15 P.O. Received Yes [ ] No [ ]

INSPECTION

1.	Custody seals on shipping container intact?	Yes [✓]	No [ ]	N/A [ ]
2.	Custody seals on shipping container dated & signed?	Yes [✓]	No [ ]	N/A [ ]
3.	Custody seals on sample containers intact?	Yes [✓]	No [ ]	N/A [ ]
4.	Custody seals on sample containers dated & signed?	Yes [✓]	No [ ]	N/A [ ]
5.	Packing material is:	Wet [ ]	Dry [✓]	
6.	Number of samples in shipping container: 1	Sample Matrix SOIL		
7.	Number of containers per sample: 2	(Or see CoC ____)		
8.	Samples are in correct container	Yes [✓]	No [ ]	
9.	Paperwork agrees with samples?	Yes [✓]	No [ ]	
10.	Samples have: Tape [ ] Hazard labels [✓] Rad labels [ ] Appropriate sample labels [✓]			
11.	Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]			
12.	Samples are: Preserved [ ] Not preserved [✓] pH ____ Preservative ____			
13.	Describe any anomalies: ____			
14.	Was P.M. notified of any anomalies? Yes [ ] No [ ] Date ____			
15.	Inspected by [signature] Date: 1-8-04 Time: 1035			

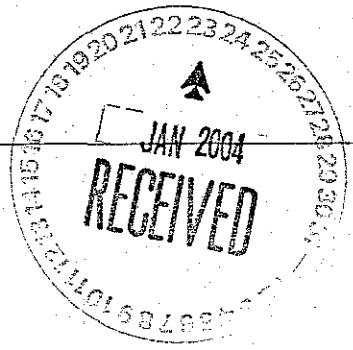
Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. ____ Calibration date ____

Alpha Meter Ser. No. ____ Calibration date ____

Beta/Gamma Meter Ser. No. ____ Calibration date ____

LIONVILLE LABORATORY INC.



21 January 2004

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Mr. Trent:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0401L492
SDG #	H2490
SAF #	F03-020
Date Received	1-08-04
# Samples	2
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	
DRO/GRO/KRO	
Herbicides	
GC Alcohol	
Metals	
Inorganics	X

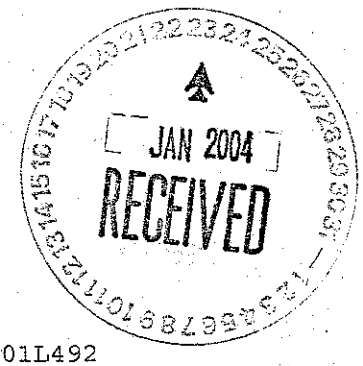
The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\fc_ltrs.doc

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041



Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-020 H2490

DATE RECEIVED: 01/08/04 LVL LOT # :0401L492

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B183N8						
% SOLIDS	001	S	04L%S005	12/30/03	01/08/04	01/09/04
% SOLIDS	001 REP	S	04L%S005	12/30/03	01/08/04	01/09/04
CHROMIUM VI	001	S	04LVI002	12/30/03	01/16/04	01/16/04
CHROMIUM VI	001 REP	S	04LVI002	12/30/03	01/16/04	01/16/04
CHROMIUM VI	001 MS	S	04LVI002	12/30/03	01/16/04	01/16/04
CHROMIUM VI	001 MSD	S	04LVI002	12/30/03	01/16/04	01/16/04
NITRATE NITRITE	001	S	04LN3A03	12/30/03	01/15/04	01/15/04
NITRATE NITRITE	001 REP	S	04LN3A03	12/30/03	01/15/04	01/15/04
NITRATE NITRITE	001 MS	S	04LN3A03	12/30/03	01/15/04	01/15/04
B183P1						
% SOLIDS	002	S	04L%S005	12/31/03	01/08/04	01/09/04
CHROMIUM VI	002	S	04LVI002	12/31/03	01/16/04	01/16/04
NITRATE NITRITE	002	S	04LN3A03	12/31/03	01/15/04	01/15/04
LAB QC:						
CHROMIUM VI	MB1	S	04LVI002	N/A	01/16/04	01/16/04
CHROMIUM VI	MB1 BS	S	04LVI002	N/A	01/16/04	01/16/04
CHROMIUM VI	MB1 BSD	S	04LVI002	N/A	01/16/04	01/16/04
NITRATE NITRITE	MB1	W	04LN3A03	N/A	01/15/04	01/15/04
NITRATE NITRITE	MB1 BS	W	04LN3A03	N/A	01/15/04	01/15/04

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-020 H2490
LVL#: 0401L492

W.O.#: 11343-606-001-9999-00
Date Received: 01-08-04

INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The matrix spike recoveries for Chromium VI and Nitrate Nitrite were within the 75-125% control limits.

8. The replicate analyses for Percent Solids, Chromium VI and Nitrate Nitrite were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

01-20-04
Date

njp\i01-492

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

02

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity __ by coupon __ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Nitrate Nitrite **Method:** EPA 353.2 (mod.)

Other: **Method**

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/16/04

CLIENT: TNUHANFORD F03-020 H2490 LVL LOT #: 0401L492

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B183N8	% Solids	98.2	%	0.01	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	0.17 u	MG/KG	0.17	1.0
-002	B183P1	% Solids	98.3	%	0.01	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Nitrate Nitrite	0.17 u	MG/KG	0.17	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/16/04

CLIENT: TNUHANFORD F03-020 H2490 LVL LOT #: 0401L492

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LVI002-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	04LN3A03-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/16/04

CLIENT: TNUHANFORD F03-020 H2490 LVL LOT #: 0401L492

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B183N8	Soluble Chromium VI	4.0	0.20u	4.1	98.9	1.0
		Insoluble Chromium VI	1250	0.20u	1200	104.1	100
		Nitrate Nitrite	5.5	0.17u	5.5	101.1	1.0
BLANK10	04LVI002-MB1	Soluble Chromium VI	4.4	0.20u	4.0	109.9	1.0
		Insoluble Chromium VI	1150	0.20u	1200	95.1	100
BLANK10	04LN3A03-MB1	Nitrate Nitrite	5.0	0.20u	5.0	100.6	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/16/04

CLIENT: TNUHANFORD F03-020 H2490 LVL LOT #: 0401L492

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B183N8	% Solids	98.2	98.2	0.00	1.0
		Chromium VI	0.20u	0.20u	NC	1.0
		Nitrate Nitrite	0.17u	0.17u	NC	1.0

(6) Nicki

Lionville Laboratory Use Only: 0401L492

Custody Transfer Record/Lab Work Request

Page 1 of 1

LvLI LIONVILLE LABORATORY INC.

60

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU- HANFORD SAF# F03-020
Est. Final Proj. Sampling Date:
Project #: 11343-606-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: OJ
QC: SPEC Del: STD TAT: 8 ~~15~~ days
Date Rec'd: 1-8-04 Date Due: 1-~~23~~ 16-04

		A
Refrigerator #		6
#/Type Container	Liquid	
	Solid	1AG
Volume	Liquid	
	Solid	250
Preservatives		

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN, Hex Chrom, NO2 NO3

MATRIX CODES: S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	ICR6	IN3N2
001	B183N8			S	12/30/03	0910	1	✓
002	↓ P1			↓	12/31/03	1305	1	✓

Special Instructions: SAF # F03-020

Run Matrix QC

DATE/REVISIONS:
1-12-04 1. Date Due = 1-16-04
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	1/8/04	0950

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGINAL REWRITTEN		

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # ___ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Samples Properly Preserved Y or N 5) Received Within Holding Times Y or N

Tamper Resistant Seal was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N COC Record Present Upon Sample Rec't Y or N Cooler Temp. ___ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-020-026	Page 1 of 1
Collector Pope/Hughes/Pfister	Company Contact: Steve Trent Telephone No.: 373-5869	Project Coordinator TRENT, SJ	Price Code ~~8N~~ 540 8C Air Quality ☐ Data Turnaround ~~45 Days~~ 15 ~~30~~ DAYS
Project Designation 216-B-26 Characterization Sampling - Soil Sampling	Sampling Location C3245 (247.5-250 ft)	SAF No. F03-020	
Ice Chest No. GPP-03-023	Field Logbook No. HNF-N- 356-1 COA 119142ES10	Method of Shipment Federal Express	① MAB 1/6/04
Shipped To RP 12-8-3 ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No. See PTR	Bill of Lading/Air Bill No. See PTR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Rad tie to B18533

Special Handling and/or Storage

Preservation	Cool 4C	None
Type of Container	G	G/P
No. of Container(s)	1	1
Volume	250mL	250mL
SAMPLE ANALYSIS	Chromium Hex - 7196; NO2/NO3 - 353.2	~~See item (1) in Special Instructions.~~ RP 12-8-3

Sample No.	Matrix *	Sample Date	Sample Time		
B183N8	SOIL	12-30-03	0910	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JS Pope / J Pfister	12-30-03 1100	MO-026 / Fridge #1	12-30-03 1100
MO-026 RP	1/6/04 0725	M.A. Baechler / M.A. Baechler	1/6/04 0725
M.A. Baechler / M.A. Baechler	1/6/04 0900	Fed Ex	
[illegible]	1-8-04 0950	[illegible signature]	1-8-04 0950
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

~~(1) Isotopic Thorium (Thorium-232); Strontium-89,90 -- Total Sr; Nickel-63; Technetium-99; Carbon-14; Tritium - H3; Gamma Spec - Radium (Radium-226, Radium-228)~~ RP 12-8-3

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

A-6003-618(03/03)

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-020-029	Page 1 of 1

Collector Pope/Hughes/Pfister	Company Contact Steve Trent Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code ~~8N~~ ~~E40~~ C Data Turnaround ~~45 Days~~ 1538 DAYS
Project Designation 216-B-26 Characterization Sampling - Soil Sampling	Sampling Location C3245 (292.5-295 ft)	SAF No. F03-020	Air Quality ☐
Ice Chest No. GPP-03-023	Field Logbook No. HNF-N-356-1 COA 119142ES10	Method of Shipment Federal Express	MAB 1/6/04
Shipped To RP 12-8-3 ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No. See PTR	Bill of Lading/Air Bill No. See PTR	

POSSIBLE SAMPLE HAZARDS/REMARKS
Rad tie to B18534

Special Handling and/or Storage

Preservation	Cool 4C	None
Type of Container	G	G/P
No. of Container(s)	1	1
Volume	250mL	250mL
SAMPLE ANALYSIS	Chromium Hex - 7196; NO2/NO3 - 353.2	See item (1) in Special Instructions. RP 12-8-3

Sample No.	Matrix *	Sample Date	Sample Time		
B183P1	SOIL	12/31/03	1305	X	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names Received By/Stored In	Date/Time
Relinquished By/Removed From [signature]	12-31-03 1430	MO-026 Gri-Lo #1	12-31-03 1430
Relinquished By/Removed From MO-026 Ref #1	1/6/04 0725	M.A. Baechler / M.A. Baechler	1/6/04 0725
Relinquished By/Removed From M.A. Baechler / M.A. Baechler	1/6/04 0725	Fed Ex	
Relinquished By/Removed From Fed Ex	1/8/04 0950	[signature]	1-8-04 0950
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

~~(1) Isotopic Thorium (Thorium-232); Strontium-89,90 -- Total Sr; Nickel-63; Technetium-99; Carbon-14; Tritium - H3; Gamma Spec - Radium (Radium-226, Radium-228)~~ RP 12-8-3

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

A-6003-618(03/03)

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD **Date:** 1-8-04

Purchase Order / Project# / SAF# / SOW# / Release #: F03-020

LvLI Batch # : 0401L492 **Sample Custodian:** [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier Fed Ex		Airbill# 7925 4346 1580	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient?	Temp 1-7	°C	Cooler # GPP-03-023	
6.	Custody seals on sample containers intact, signed and dated?	☐ Yes	☐ No	☐ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☑ Yes	☐ No		
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
13.	VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A	
14.	QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☐ Yes	☐ No	☑ No Discrepancies	

SR-002-B

LIONVILLE LABORATORY INC.

3 February 2004

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Mr. Trent:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0401L644
SDG #	H2490
SAF #	F03-020
Date Received	
# Samples	1
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	
DRO/GRO/KRO	
Herbicides	
GC Alcohol	
Metals	
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

0000001

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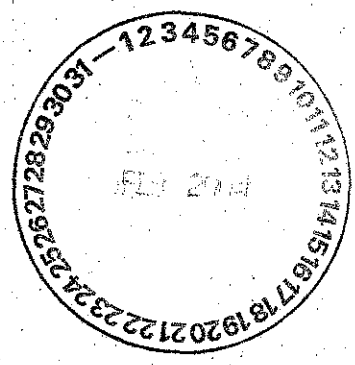
r:\group\pm\orlette\tnu-hanford\data\fc_ltrs.doc



Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-020 H2490

DATE RECEIVED: 01/27/04 LVL LOT # :0401L644

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B183N8						
% SOLIDS	001	S	04L%S024	12/30/03	01/28/04	01/28/04
% SOLIDS	001 REP	S	04L%S024	12/30/03	01/28/04	01/28/04
TOTAL ORGANIC CARBON	001	S	04LTZ004	12/30/03	01/31/04	02/02/04
TOTAL ORGANIC CARBON	001 REP	S	04LTZ004	12/30/03	01/31/04	02/02/04
TOTAL ORGANIC CARBON	001 MS	S	04LTZ004	12/30/03	01/31/04	02/02/04
B183P1						
% SOLIDS	002	S	04L%S024	12/31/03	01/28/04	01/28/04
TOTAL ORGANIC CARBON	002	S	04LTZ004	12/31/03	01/31/04	02/02/04
LAB QC:						
TOTAL ORGANIC CARBON	MB1	S	04LTZ004	N/A	01/31/04	02/02/04
TOTAL ORGANIC CARBON	MB1 BS	S	04LTZ004	N/A	01/31/04	02/02/04
TOTAL ORGANIC CARBON	MB1 BSD	S	04LTZ004	N/A	01/31/04	02/02/04

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-020 H2490
LVL#: 0401L644

W.O.#: 11343-606-001-9999-00
Date Relogged: 01-27-04

INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.

3. Sample holding times as required by the method and/or contract for Total Organic Carbon (TOC) were not met as the analyses were requested past the sample holding times.

5. The method blank for TOC was within the method criteria.

6. The Laboratory Control Samples (LCS) for TOC were within the laboratory control limits. The duplicate LCS was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recovery for TOC was within the 75-125% control limits.

8. The replicate analyses for Percent Solids and TOC were within the 20% RPD control limit.

9. Total Organic Carbon samples are dried prior to analysis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

02-03-04
Date

njp\i01- 644

0000003

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

02

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		__ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		✓ 9060 (mod.)	✓ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	0000004
Other:	**Method:**		
Other:	**Method**		

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/03/04

CLIENT: TNUHANFORD F03-020 H2490 LVL LOT #: 0401L644

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B183N8	% Solids	98.1	%	0.01	1.0
		Total Organic Carbon	439	MG/KG	28.1	1.0
-002	B183P1	% Solids	98.3	%	0.01	1.0
		Total Organic Carbon	304	MG/KG	36.4	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/03/04

CLIENT: TNUHANFORD F03-020 H2490 LVL LOT #: 0401L644

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LTZ004-MB1	Total Organic Carbon	4.7 u	MG/KG	4.7	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/03/04

CLIENT: TNUHANFORD F03-020 H2490 LVL LOT #: 0401L644
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B183N8	Total Organic Carbon	2540	439	1980	106.1	1.0
BLANK10	04LTZ004-MB1	Total Organic Carbon	407	4.7 u	400	101.8	1.0
		Total Organic Carbon	404	4.7 u	400	100.9	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/03/04

CLIENT: TNUHANFORD F03-020 H2490 LVL LOT #: 0401L644
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	04LTZ004-MB1	Total Organic Carbon	101.8	100.9	0.86

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/03/04

CLIENT: TNUHANFORD F03-020 H2490 LVL LOT #: 0401L644
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B183N8	% Solids	98.1	98.2	0.092	1.0
		Total Organic Carbon	439	365	18.4	1.0

Lionville Laboratory Use Only
0401L0444

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC.

10

Client TNU-HANFORD F03-020
Est. Final Proj. Sampling Date
Project # C1343-606-001-9999-00
Project Contact/Phone #
Lionville Laboratory Project Manager O. J.
QC SPEC Del STD TAT 7 DAYS

Date Rec'd 1/27/04 Date Due 2/3/04

		A
Refrigerator #		6
#/Type Container	Liquid	1
	Solid	1AG
Volume	Liquid	
	Solid	250
Preservatives		

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; TOC; INORG: Metal, CN

Lionville Laboratory Use Only

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	TOC
001	B83N8			S	12/30/03	0910	1
002	B183P1			L	12/31/03	1305	1

Special Instructions: SAF# F03-020

RUN MATRIX QC

RELOG OF 0401L492

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was: 1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. ___ °C

relog

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
relog	J Perry	1/27/04	

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGINAL REWRITTEN		